

REMARKS

The present communication is responsive to the Official Action mailed March 30, 2004. A petition for a three-month extension of the term for response to said Official Action, to and including September 30, 2004, is transmitted herewith.

Claims 1-21 were rejected under 35 U.S.C. § 112, first paragraph, as assertedly containing subject matter which was "not described in the specification" so as to enable one skilled in the art to practice the same. In particular, the Official Action asserts that "an initial disperser" is not clearly described in the specification. At the outset, the term "initial disperser" is explicitly used at paragraph 0012 of the specification as referring to the element which breaks the stream of fluent material into "discontinuous parts" which are then dispersed further by introducing electrical charge into the discontinuous parts. In the embodiment of Figs. 1-4, the initial disperser includes the conduit 26 defined by elements 13 and 14 of body 10, and particularly the flutes 30 defined by element 13 of the body within the conduit. By the present amendment, paragraph 0051 of the specification has been amended to clarify this point. Such clarification, of course, does not constitute new matter, inasmuch as the specification already referred to the initial disperser and already described the action of the conduit and flutes in disrupting the liquid.

Claims 2-21 were rejected under 35 U.S.C. § 112, second paragraph, as asserted indefinite because "there is no clear or proper teachings for 'the initial disperser comprises a casing.'" (Official Action at 3.) By the present amendment, the term "casing" in the claims has been replaced by the term "body," the term used throughout the detailed description portion of the specification. The specification has been amended to use the term "body" consistently throughout. In

light of these changes, and in light of the further amendments to clarify that spaces 20 and 22, which define the conduit, are part of the body 10, there can be no doubt about what is meant by the expression describing the initial disperser as comprising a body defining a conduit for carrying the stream of fluent material, as now recited in claim 2. Accordingly, the rejection under 35 U.S.C. § 112, second paragraph, should be withdrawn.

Claims 1-6, 17, 19, 20, 22-25, 28-30, 32, 36 and 38 were rejected under 35 U.S.C. § 102 on *DeFreitas et al.*, U.S. Patent 5,695,328 ("*DeFreitas*"). Reconsideration and withdrawal of this rejection are respectfully requested. Briefly, *DeFreitas* teaches a fuel igniter which includes an electrostatic fuel atomization nozzle such as those "commercially available from Charged Injection Corporation, such as a series 18 Spray triode® and a SPRAYTRON™ nozzle." (Col. 5, lns. 35-65.) The electrostatic atomization nozzle 12 (Figs. 1 and 2) breaks a continuous stream of fluid fuel into discontinuous droplets, which are then subjected to an air swirl (as through air vent 40 and air swirl orifice 44; Figs. 1A and 2) after the droplets exit from the electrostatic atomization nozzle (col. 5, lns. 45-65). Likewise, in Fig. 3, the "aerodynamic swirlers (94)" referred to in the Official Action as the disperser direct the swirling air stream into contact with the droplets formed by the electrostatic atomization nozzle 12. The swirlers do not act on the fluid before it passes through the electrostatic atomization nozzle 12, so that the fluid is supplied to the electrostatic atomization nozzle in the form of a continuous liquid stream.

Claim 1 has been amended to state more clearly the arrangement implicit in the original claim, i.e., that the "electron supply device" is "arranged so as to provide free electrons to said discontinuous parts after said discontinuous parts are formed by said initial disperser." Thus, in the

apparatus of claim 1, the electron supply device acts on the fluid after the fluid is initially broken up into "discontinuous parts" such as droplets by the initial disperser. One example of this arrangement is discussed at paragraphs 0051-0054 of the present specification. In that example, the initial disperser forms a "frothy flow" 63 of discontinuous parts 64 (§ 0051) and the electron beam impinges on the "frothy flow" (§ 0054), thereby electrically charging the discontinuous parts (e.g., individual droplets) so that these discontinuous parts are further dispersed under the influence of the charge.

Claim 1 thus recites a system with the initial disperser arranged to form the fluid stream into discontinuous parts before the electrostatic charging device operates on these parts. *DeFreitas* teaches the aerodynamic swirler (94) or alleged disperser downstream from the electrostatic charging device (12), so that the alleged initial disperser or swirler acts on the fluid only after it has been charged and dispersed by the electrostatic charging device. To anticipate a claim under 35 U.S.C. § 102, the reference must teach each and every element recited in the claim, and "the elements must be arranged as required by the claim" M.P.E.P. § 2131. Because *DeFreitas* does not teach the arrangement of elements recited in claim 1, the § 102 rejection must be withdrawn. Moreover, in the invention recited in claim 1, using the initial disperser to break the fluid into discontinuous parts before it is charged allows the charging device to operate satisfactorily, even if the fluid is electrically conductive. Nothing of the sort is taught in *DeFreitas*.

The rejection should be withdrawn as to claim 1 and as to claims 2-6, 17, 19 and 20, all of which depend directly or indirectly from claim 1.

Independent claim 22 recites the steps of "providing a flow of droplets of fluent material" and directing electrons "at

said droplets" to charge the droplets and thereby further disperse the fluent material included in the droplets. The claim thus requires that the droplets exist at the time the electrons are directed at them. By contrast, *DeFreitas* directs electrons at a solid stream of liquid, so that the liquid is first dispersed by the electrical charge. Only after charging are the droplets exposed to any mechanical action or dispersion provided by the air swirls. Thus, claim 22 distinguishes over *DeFreitas* for reasons similar to those advanced above with respect to claim 1. The § 102 rejection should be withdrawn as to claim 22 and as to claims 23-25, 28-30, 32, 36 and 38, dependent thereon.

Claim 31 was rejected under 35 U.S.C. § 103 as assertedly obvious over *DeFreitas*. This rejection should be withdrawn for the same reasons advanced above with respect to claim 22.

Claims 7-16, 18, 21, 26, 27, 33-35, 37 and 39-42 were not rejected on prior art, but were objected to as depending from rejected base claims. The Examiner's indication that such claims would be allowable if rephrased to independent form is noted with appreciation. However, these claims have not been amended to independent form at this time because the base claims are believed allowable for the reasons set forth above.

The Examiner's attention is respectfully directed to the Supplemental Information Disclosure Statement filed herewith.

As it is believed that all of the objections and rejections set forth in the Official Action have been fully met by the foregoing amendments and remarks, favorable reconsideration and allowance are earnestly solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone applicant's attorney at

(908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

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Respectfully submitted,

By 

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